

ANNUAL REPORT

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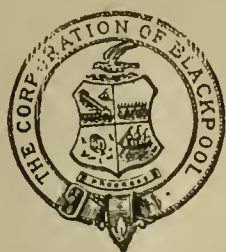
HEALTH OF BLACKPOOL

FOR 1897,

BY

A. JASPER ANDERSON, M.A., M.B., Oxon., D.P.H. Cantab.

MEDICAL OFFICER OF HEALTH.



Blackpool :

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1898.



*To the Mayor, Aldermen and Burgesses of
the Borough of Blackpool.*

MR. MAYOR AND GENTLEMEN,

I have the honour to present to you my Seventh Annual Report on the Health of Blackpool, containing an account of the work of the Sanitary Department during the year 1897.

The death-rate was approximately equal to the average for the five years 1891-95. The zymotic rate was above the average, being caused by an increased number of deaths from diarrhœa and measles.

In my last Annual Report I ventured to make the following recommendations :—

- (i) That the sewer outfall be carried out into deeper water.
- (ii) That the outlet of Spen Dyke be carried sea-wards from the foot of the hulking.
- (iii) That the mussels growing on the jetties be removed and destroyed.
- (iv) That plans be got out for enlarging the Infectious Diseases Hospital, and improving the accommodation for suspicious cases of infectious disease, and for discharging patients.
- (v) That the question of making other provision than the Old Sanatorium for small-pox cases be thoroughly discussed.
- (vi) That the joints of all drains, whether of new or old houses, be required to be made of such materials, and in such a manner that they will withstand the water test, both when bare and when covered in.

(vii) That the ground or basement floor, or the ground beneath such, be required to be cemented, asphalted, &c., in accordance with the bye-law in that behalf.

(viii.) That automatic flushing tanks be provided at the dead ends of the branch sewers, and

(ix) That public baths be provided for the use of the inhabitants.

The first and second are now to be carried out as soon as possible. The third has been done. Nothing has been done with respect to the fourth and fifth recommendations. The sixth has been partially, but not wholly, accepted, while the seventh, eighth and ninth have not.

I have to thank the members of the Sanitary Department for the valuable services they rendered me during this onerous year.

I am, Mr. Mayor and Gentlemen,

Your obedient Servant,

A. JASPER ANDERSON,

Medical Officer of Health.

Public Health Office, Blackpool,

February, 1898.

REPORT.



1.—VITAL STATISTICS.

A.—SUMMARY.

Area of Borough (exclusive of foreshore)	3,495 acres	
Population (Census April 6th, 1891)....	23,846 persons	
Persons per House as per Census	4.84	
	1896.	1897.
Rateable Value (General District Rate).....	£ 252,153	£ 282,551
Do. (Borough Rate).....	£ 260,252	£ 290,381
No. of Dwelling-Houses on Rate Book.....	7,689	8,665
Do. do. do empty	123	369
Population of Residents estimated at middle of year from No. of inhabited houses	36,638	40,234
Density of Population (persons per acre).....	10.48	11.51
Birth-rate (per 1,000 inhabitants)	25.66	26.25
Death-rate (gross) Do.	17.19	18.54
Infant Mortality (per 1,000 births) ...	158.5	191.3
Zymotic-rate (per 1,000 inhabitants)	1.99	2.78
Death-rate (corrected for Visitors)...	13.84	15.26
Do. (corrected for age and sex distribu- tion; factor 1.129)	15.62	17.23
Infant Mortality (corrected for Visitors)	145.7	168.5
Zymotic-rate (corrected for Visitors)	1.66	2.36

B.—POPULATION.

The population has been estimated, as in former years, by multiplying the number of inhabited houses in each of the six wards of the town by the average number of persons per house for each ward, as given by the last census. This gives the population for each ward, and their sum is the population of the town.

The accuracy with which this estimate is made controls that of all the rates deduced therefrom. The difficulties of making a correct estimate increase with the number of years that have elapsed since the last census year. But so long as the estimates are made each year on the same basis, and there is no alteration in the character of the population, the various birth and death rates of the town for the different years will be comparable *inter se*, extreme caution being taken, however, before making comparisons with the corresponding rates of other districts.

There were in August, 1897, 8,296 inhabited houses, and a resident population (excluding visitors staying in the town) of 40,234. All rates in this report, unless otherwise stated, are calculated upon this estimated population. There were 976 more houses on the rate-book in 1897 than in 1896. The population for 1897 would have been 32,928 had the rate of increase of the town since 1891 been equal to the rate between 1881 and 1891.

The increase of population over the previous year has been 3,596, made up of 310 (the *natural increase*, excess of births over deaths), and 3,286, the excess of immigrants into, over emigrants from, the Borough.

The greatest increase (1,023) has taken place in Talbot Ward, and the next (945) in Claremont Ward; whilst there is again a slight decrease in Bank Hey Ward.

C.—BIRTHS.

During the year 1,046 births occurred in the Borough, but to these must be added as belonging thereto 10 births in the Kirkham Workhouse, *i.e.*, 1,056 births (533 males and 523 females). The birth-rate was 26.25 as compared with 25.66 last year, and 23.91 for the quinquennium 1891-95. For England and Wales the rate during 1897 was 29.7, and for the 33 Great Towns 30.7. The births include 58 illegitimate children, *viz.*, 36 boys and 22 girls. The percentage of illegitimate births of total births was 5.49, and the rate of illegitimate births was 1.44 per 1,000 inhabitants.

D.—DEATHS.

The deaths registered during the year were 746 ; and of these 132 occurred amongst persons staying temporarily in the town, and belonging to a population not included in the estimate of 40,234 persons. There were, therefore, 614 deaths amongst residents during the year—including 23 deaths in Kirkham Workhouse out of the Borough. The gross death-rate was 18·54, and the rate amongst residents was 15·26. These rates are practically identical with the average death-rate for the years 1891-95. The death-rate corrected for age-and-sex distribution, to render it comparable with the Registrar General's rates for other districts was 17·23.

The death-rate for England and Wales during 1897 was 17·43, and for the 33 great towns 19·1. The death-rate for the 67 other large towns was 17·2, and for England and Wales, less the 100 towns, 16·4 per 1,000.

The population and the rates of the six wards of the town are given in the following table, the population of each ward being calculated on the number of the inhabited houses. The average of the rates for the five years 1891-5 are given for comparison.

TABLE I.

WARD.	Population 1897.	Birth Rate.			Death Rate.			Zymotic Rate.		
		1896	1891-5	1897	1896	1891-5	1897	1896	1891-5	1897
Claremont	6 461	25·36	24·06	23·84	11·59	14·05	10·83	0·905	2·07	1·70
Talbot	10,125	32·41	29·09	30·52	17·58	17·37	18·46	1·97	2·18	3·46
Bank Hey	2,136	15·71	11·87	11·70	10·91	12·84	10·30	0·873	1·29	0·47
Brunswick	6,083	21·25	21·32	26·14	14·11	14·54	15·29	1·87	1·15	2·47
Foxhall....	10,104	26·72	25·65	28·01	12·92	14·84	15·14	2·06	1·98	2·67
Waterloo..	5,325	18·99	20·76	21·78	11·87	15·19	15·77	1·27	1·75	1·13

The deaths in Kirkham Workhouse are allocated to the wards from whence the patients were removed, except in five instances, where I have no information as to the Blackpool address.

The order of the birth-rates is Talbot, Foxhall, Brunswick, Claremont, Waterloo and Bank Hey, varying from 30·52 in Talbot to 11·70 in Bank Hey. The rates are on the whole higher than for the quinquennium 1891-95, and the order of the wards is the same, except that Claremont and Brunswick change places.

The death-rates from all causes and from zymotic diseases are the highest in Talbot Ward and the lowest in Bank Hey Ward.

DEATHS IN CERTAIN AGE-GROUPS.

The death-rates per 1,000 *persons living within six definite age-groups* have been calculated, as also the rates for a thousand of each sex living within these limits, and are given in Table C in the Appendix.

Of a thousand children under five years old 62 died, as compared with 50 in 1896 and 71 in 1895. Males died in the proportion of 81 to 45 females.

In the age-period over 5 and under 15 years, males died in the proportion of 2 to 1·41 females out of 1,000 of each sex.

From 15 years to 25 years, the death-rate for males was 4·27 and for females 2·79 per 1,000.

Over 25 and under 65 years, the death-rate for males was 13·5 and for females 9·58, as compared with 12·58 and 8·23 respectively in 1896.

The death-rates in the age-group, 65-75 years, were 67·57 for males and 37·21 for females, as compared with 61·36 and 74·44 respectively in 1896.

Over 75 years the death-rate amongst males was 142.5 and females 174.6, the corresponding rates in 1896 being 160.2 and 98.72. This alteration is mainly due to the small numbers entering into calculation at this advanced age.

DEATHS OF VISITORS.

In health resorts it is necessary to deduct from the total deaths those occurring amongst persons staying in the town. Each death is inquired into, and after that inquiry a decision is come to as to whether the deceased was a visitor or not. In 1897 it was decided to exclude 132 deaths as those of visitors, viz., 76 males and 56 females. Thirty-three of these were under five years of age, and 99 above. There were 11 deaths from phthisis, 24 from respiratory diseases, 14 from heart disease, and 5 from injuries, amongst these deaths. There were 17 deaths from the seven zymotic diseases, in some of which cases either infection or invasion of the disease had taken place before arriving in the town.

LENGTH OF RESIDENCE IN BLACKPOOL OF PERSONS WHO DIED DURING THE YEAR 1897.

As usual I have prepared Table II. to show the length of time persons who died in 1897 had lived in Blackpool, classifying the same into six age-groups.

INFANT MORTALITY.

There were 202 deaths of children under twelve months of age, and 1,056 births, *i.e.*, a rate of 191·3 per 1,000 births, as compared with 158·5 in 1896, 216·3 in 1895, and 159 in 1894.

Of the 202 deaths, 24 were of children not born in Blackpool. Leaving these out of consideration the corrected rate is 168·5, as compared with the corresponding rates for 1896 of 145·7, 191·6 for 1895, and 169·1 for the five years 1891-5. (See Table V. for the complete figures).

From these figures it will be seen that the infant mortality is slightly below the average.

In Table F (in the Appendix) the quarterly rates are given, from which the rate is seen to be 215 in the third quarter, 176 in the fourth, 146 in the second, and 126 in the first.

For 1896 the corresponding rates were 194 in the third quarter, 147 in the fourth, 111 in the second, and 124 in the first.

During 1897 in England and Wales, 148 infants under 1 year old died out of 1,000 births. For the 33 great towns, the rate of infant mortality in 1897 was 177, ranging from 131 in Huddersfield, 135 in Croydon, and 140 in Swansea and Halifax, to 219 in Salford, 220 in Burnley, and 262 in Preston.

The causes of death are classified in the adjoining table under several headings, and also according to the age at death. As in previous years 'Congenital Debility' and 'Asthenia' have been classified under premature birth, and 'Marasmus' under atrophy.

TABLE III.—DEATHS, with AGES and CAUSES, of Children under 12 months old in 1897.

CAUSES OF DEATH.	AGES BY MONTHS.												Total.											
	1st day.	2nd day.	3rd day.	4th day.	5th day.	6th day.	7th day.	1st week.	2nd week.	3rd week.	4th week.	1st mnt.		2nd do.	3rd do.	4th do.	5th do.	6th do.	7th do.	8th do.	9th do.	10th do.	11th do.	12th do.
Premature Birth.....	12	3	5	...	1	2	2	25	6	1	2	34	2	1	1	1	...	...	...	...	...	...	...	40
Atelectasis	4	...	...	1	...	...	...	5	...	...	...	5	...	...	...	...	...	...	...	...	...	...	...	5
Congenital Malformations	1	...	...	1	...	1	...	2	1	...	...	3	2	...	...	...	...	1	...	...	...	...	...	6
Whooping Cough .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	1	1	4
Measles .....	...	1	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	1	1	...	...	1	3	6
Scarlet Fever .....	...	...	...	...	...	...	...	Scarlet Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteritis .....	...	...	...	...	...	...	...	Enteritis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diarrhoeal Diseases .....	...	...	...	...	...	...	...	2	1	...	1	3	2	3	6	4	2	4	2	6	1	1	1	40
Erysipelas .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Syphilis .....	...	...	...	...	...	...	...	1	...	...	1	1	...	...	...	...	1	...	...	...	...	...	...	2
Liver Diseases .....	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Dentition .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Diseases of Digestive Organs .....	...	...	...	...	...	...	...	...	1	...	...	1	3	...	...	2	1	1	...	...	...	...	...	8
Convulsions and Diseases of Nervous System .....	...	1	1	1	...	1	...	3	...	...	1	4	1	3	2	2	1	1	2	1	1	...	2	20
Tubercular Meningitis .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tabes Mesenterica .....	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...
Other Tubercular Diseases .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Atrophy .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Diseases of Respiratory Organs .....	...	...	...	...	...	...	...	1	1	...	1	2	2	1	7	2	1	...	...	...	...	1	...	15
Injury at Birth .....	...	...	...	...	...	...	...	...	...	...	...	...	2	1	5	1	3	1	1	3	11	5	2	35
Navel Hemorrhage .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Suffocation	1	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	1
Other Violence .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
All other causes.....	2	1	...	...	...	...	...	3	...	3	...	6	1	5	...	...	1	...	...	1	1	...	...	15
All Causes	20	5	6	2	1	4	2	40	8	7	6	61	17	14	21	15	12	7	10	8	19	9	9	202

Eight of these cases were uncertified, the causes of death being stated to be convulsions in two cases, natural causes in two, diarrhoea and exhaustion in one, premature birth in another, and congenital debility in the remaining two.

Two inquests were held :—One on a child about one hour old, found on the sands ; verdict suffocation, but no evidence to shew how caused. The other was an illegitimate child, but there was no satisfactory evidence to shew that the child had a separate existence.

Of the 202 deaths, 24 of the children had neither been born in Blackpool nor Kirkham Workhouse. Of the remaining 178 children, 162 were legitimate and 16 illegitimate. During the year there were 998 legitimate and 58 illegitimate births. Hence, out of every 1,000 legitimate births there were 162·3 deaths, and 276 out of 1,000 illegitimate births during the first year of life. These figures correspond very closely with the similar rates for the five years 1891-95, which were 162·7 and 279 respectively.

In Table IV. the deaths of children under 12 months old for the years 1891 to 1897 are given, distributed into wards ; whilst in Table V. the rate for each ward for each year, and for 1891-95 has been calculated.

TABLE IV.

Number of Children under 1 year old who died in the respective Wards.

WARD.	1891	1892	1893	1894	1895	1891-5	1896	1897
Claremont.....	23	11	18	6	20	78	20	22
Talbot.....	24	24	42	34	55	179	40	57
Bank Hey.....	2	3	5	2	3	15	9	...
Brunswick.....	14	17	19	18	23	91	20	23
Foxhall.....	33	16	29	25	56	159	41	49
Waterloo.....	7	20	10	11	12	60	7	25
TOTAL.....	103	91	123	96	169	582	137	176

TABLE V.

INFANT MORTALITY—Deaths of Children under 1 year old
per 1,000 Births.

WARD.	1891	1892	1893	1894	1895	1891-5	1896	1897
Claremont.....	298·7	129·4	209·3	62·5	183·5	172·5	142·8	142·8
Talbot	136·3	119·4	212·1	134·3	201·4	162·8	135·6	184·4
Bank Hey.....	95·2	100·6	263·1	62·5	90·9	112	25·0	...
Brunswick.....	153·8	158·8	177·5	148·8	200·0	168·2	160	144·7
Foxhall	221·4	111·9	177·9	161·3	231·4	187·2	166·6	173·1
Waterloo	134·6	263·1	153·8	159·4	115·4	163·9	79·5	215·5
Rate for Borough.....	181·9	141·9	192·8	132	191·6	169·1	145·7	168·5

MORTALITY FROM ZYMOTIC DISEASES.

The seven principal zymotic diseases, viz.:—Small-pox, scarlet fever, diphtheria (including membranous croup), 'fever,' measles, whooping cough, and diarrhœa caused 112 deaths, as compared with 73 in 1896, and 109 in 1895. Of these 17 were visitors. The zymotic rate per 1,000 inhabitants was 2·78, and 2·36 deducting the deaths of visitors.

For England and Wales the rate was 2·15, and for the 33 English towns 2·87.

There were no deaths from small-pox, 6 from scarlet fever, 3 from diphtheria, 2 from 'croup,' 17 from 'fever,' 23 from measles, 9 from whooping cough, and 52 from diarrhœa.

The zymotic rate from the chief zymotics, deducting the deaths from diarrhœa and whooping cough, was 1·2676 as compared with 0·8734 for 1896 and 1·22 for the 33 English towns.

The diarrhœal rate was 1·2925 as compared with 1·24 for the 33 great towns.

MORTALITY FROM OTHER DISEASES.

Phthisis caused 43 deaths, including 11 visitors, giving a death-rate of 1·069, and deducting visitors of 0·795. For 1896 the corresponding death rates were 1·14 and 0·76 respectively.

Diseases of the Respiratory Organs caused 151 deaths, of whom 24 were visitors. The death-rate was 3·753 as compared with 3·057 in 1896. The death-rate corrected for visitors was 3·157. The deaths from lung diseases other than phthisis constituted 20·2 per cent. of the total deaths as compared with 17·7 in 1896.

The deaths from diseases of the respiratory organs were, contrary to the usual custom, more numerous in the first and second quarters than in the fourth. Although influenza was reputed to be prevalent in certain parts of England, it does not appear to have established a footing here. A death was ascribed to it on April 18th. On August 2nd a visitor who had been here seven days, and on September 3rd one who had been in the town three days, were reported to have died from influenza, the first-named really dying from tubercular meningitis subsequent on influenza.

Alcohol was certified as the primary cause of death in 9 cases, 2 males and 7 females—2 of these being visitors. In 7 cases, death (6 males and 1 female) was referred to disease of the liver, under such circumstances that alcohol was most probably the primary cause of death. Therefore 0·2237 per 1,000 persons were certified as dying from alcoholism in Blackpool, as compared with 0·082 in 1896 and 0·394 in 1895. The rate for England and Wales during the five years, 1886-90 was 0·055.

Cancer caused 33 deaths (3 amongst visitors) as against 20 in 1896, and 19 in 1895. There were 14 males and 19 females. There were 16 deaths from disease of the digestive tract, 6 from the liver, 3 from the uterus and its appendages, 3 from the breast, and 5 others from disease in other parts of the body.

The cancer death-rate was 0·8202, as against 0·546 in 1896, and 0·577 in 1894.

The deaths due to tubercular affections other than phthisis, were 16, viz.: 5 tuberculosis, 7 tubercular meningitis, 3 tabes mesenterica, and 1 intestinal tuberculosis.

The following deaths occurred after confinement or mis-carriage :—(i.) syncope, parturition 24 days ; (ii.) parturition 15 days, puerperal insanity, acute mania 10 days, exhaustion ; (iii.) ovarian tumour, mis-carriage (4th month) 10 days, inflammation of cyst wall, peritonitis, ovariectomy vomiting and exhaustion ; (iv.) child-birth 2 days craniotomy, exhaustion ; (v.) measles 10 days, child-birth 6 days, exhaustion ; (vi.) parturition 4 days, septicæmia : (vii.) puerperal fever 4 days ; (viii.) parturition, placenta prævia, forceps, adherent placenta, hæmorrhage ; (ix.) recurrent perityphilitis 10 days, parturition (premature child) subacute peritonitis ; (x.) parturition 6 days, septicæmia ; (xi.) pneumonia 7 days, mis-carriage 2 days ; (xii.) endocarditis, child - birth, syncope ; (xiii.) parturition 15 days, inflammation of brain 4 days.

The rate of deaths after confinement per 1,000 births was 10·4 compared with 6·38 in 1896, and 10·2 in 1895.

The deaths from *injuries* were 9, of whom 5 were visitors, as against 16 in 1896, and 14 in 1895.

The *inquests* held during the year were 31, with the following verdicts :—

Injuries—

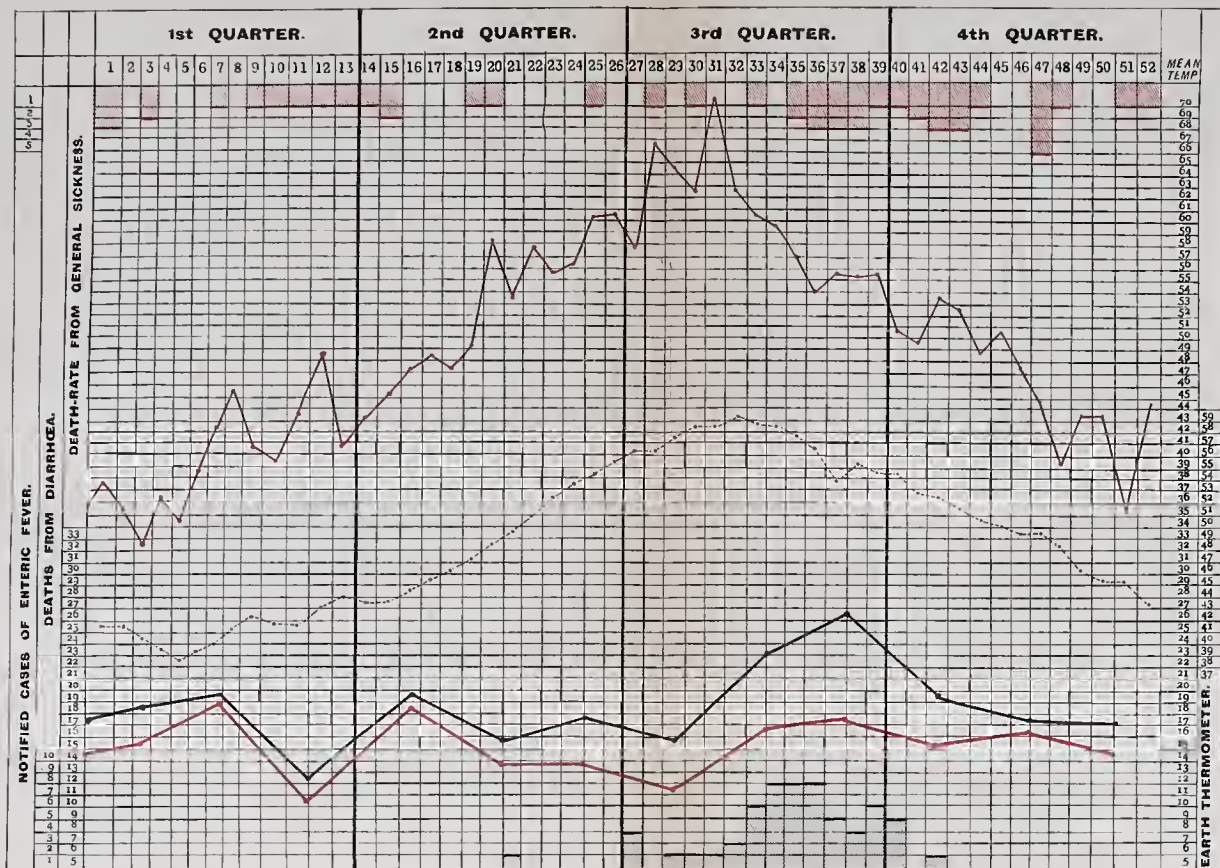
By being run over.....	2
By falling	6
	— 8

Suicide—

By drowning.....	1
By poisoning.....	1
	— 2

Natural causes	8
Accidentally drowned	8
Suffocation.....	1
Cerebral hæmorrhage	1
Alcoholic poisoning	1
Hæmorrhage following abortion.....	1
No satisfactory evidence of a separate existence.....	1
	—
	<u>31</u>

CHART I.



DEATH-RATE (Monthly) FROM ALL DISEASES _____
Do. do. OF RESIDENTS ONLY _____
TOTAL DEATHS (Weekly) from DIARRHŒA

--	--	--	--

NOTIFIED CASES (Weekly) of ENTERIC FEVER

--	--	--	--

MEAN TEMPERATURE (Weekly) at 9-0 a.m. _____
MEAN TEMPERATURE OF SOIL (Weekly) at Depth of Four Feet _____

CHART II.

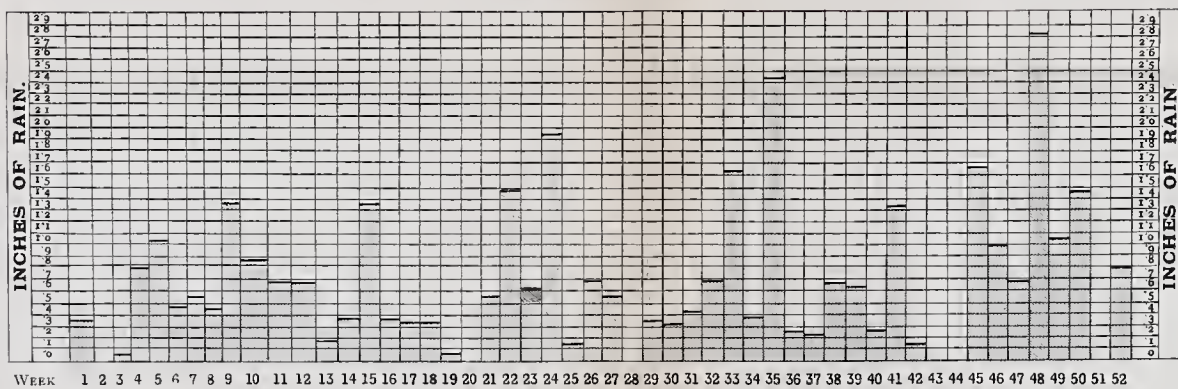
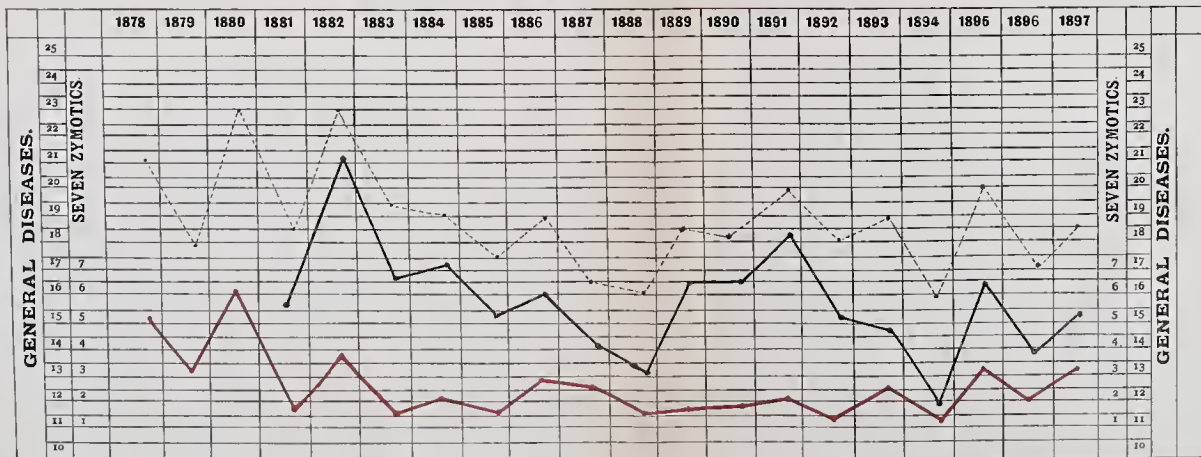


CHART III. DEATH RATES.

From (1) GENERAL DISEASES -----
 " (2) " " -----
 DEATHS OF VISITORS DEDUCTED
 " (3) SEVEN ZYMOTIC DISEASES -----



There were 33 deaths, the causes of which were uncertified either by the Coroner or a Medical Practitioner. Therefore 4.42 per cent. of the total deaths were uncertified, as compared with 4.44 per cent. in 1896.

Chart I. gives graphically the monthly death-rates, the black line giving the gross death-rates, the lower red line the corrected death-rates, the upper red line the mean weekly temperature. The lower shaded spaces denote the weekly deaths from diarrhœa, and the upper spaces shaded red the cases of enteric fever notified each week. It is noteworthy how the deaths from diarrhœa occur whilst the earth thermometer reads above 56° F. I am again able to give the temperature of the soil at a depth of four feet. The mean weekly temperature of this earth thermometer is denoted by the dotted red line.

Chart II. gives the rainfall for each week of the year.

Chart III. gives the several death-rates for the last twenty years.

Tables A, B, C, D, E, F, G, K, and L, in the Appendix, give further details of the vital and mortal statistics as compared with previous years.

The accompanying table (Table VI.) gives a revision of the deaths from 15 causes during the last twelve years.

TABLE VI.

	POPULATION.											
	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897
	19,550	20,380	20,540	21,661	24,312	23,846 Census.	26,470	28,389	30,337	32,943	36,638	40,234
Small-pox .....	...	...	...	...	...	...	...	1	2	...	...	...
Measles	10	...	5	2	8	10	...	4	6	3	4	23
Scarlet Fever	5	12	4	1	5	4	4	11	4	11	9	6
Diphtheria	5	5	13	12	6	1	1	4	6	4	1	3
Whooping Cough ...	3	14	...	8	2	7	5	9	3	10	8	9
Croup, not spasmodic	8	4	4	6	8	4	1	4	3	...	5	2
Typhus Fever .....	...	...	...	...	...	...	...	...	...	...	...	1
Enteric Fever	6	4	7	8	3	4	4	5	8	12	13	15
Diarrhoea	25	18	5	11	23	24	10	41	13	69	33	52
Rheumatic Fever ...	5	2	1	...	2	4	1	2	3	2	4	7
Erysipelas	2	1	2	2	...	1	...	4	3	2	3	1
Phthisis	27	25	23	30	27	32	33	28	33	41	42	43
Bronchitis, Pneumonia and Pleurisy	65	61	62	64	95	137	102	118	67	131	112	150
Heart Disease	23	23	30	39	37	41	40	43	45	47	53	65
Injuries	11	6	7	15	8	15	8	7	11	14	16	9
Other diseases	175	151	159	204	227	217	279	251	274	315	327	360

II.—ACTION TAKEN TO PREVENT THE SPREAD OF DISEASE.



A.—NOTIFICATION OF INFECTIOUS DISEASE.

This is carried on under Section 75 of the Blackpool Improvement Act, 1879, with very beneficial results. There is an idea on the part of some of the inhabitants that there is no liability to the occupier to notify the existence of infectious disease within his house, and that if he can avoid calling in a medical man there is no necessity to divulge the nature of the disease. The occupier is bound to tell in any case, whether a medical man notifies or not, although the information on the certificate of notification is held sufficient, if a medical man be in attendance. In some cases I have to complain of the certificates not being forwarded "forthwith," and the unnecessary delay in some cases in arriving at a diagnosis.

Again, I have to complain of the failure to notify cases of "puerperal fever."

A difficulty is raised as to what is meant by 'puerperal fever.' In the last edition of the "Nomenclature of Diseases," drawn up by a Joint Committee of the Royal College of Physicians, this term has been expunged, but it is there stated that puerperal septicæmia, puerperal pyæmia, and puerperal sapræmia, are frequently included under this term.

The following cases of infectious disease were notified during the year, and are arranged in tabular form to shew the number of cases each month :—

TABLE VII.

DISEASE.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	TOTAL.
Smallpox .....	...	...	...	...	...	...	...	...	...	...	...	...	..
Measles	1	17	180	280	73	94	42	48	16	12	6	25	794
Scarlet Fever ...	18	12	28	9	9	2	10	15	17	34	13	10	177
Diphtheria	2	...	...	1	...	1	...	...	...	1	2	...	7
Enteric Fever ...	5	2	4	3	2	1	2	4	9	10	6	2	50
Puerperal Fever	...	...	...	1	...	...	...	...	...	...	...	1	2
Typhus Fever....	...	...	...	...	...	...	...	...	...	..	1	...	1
TOTALS.	26	31	212	294	84	98	54	67	42	57	28	38	1031

The number of houses infected with the different diseases is given in the following table :—

TABLE VIII.
NUMBER OF HOUSES INFECTED.

DISEASE.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Totals
Smallpox .....	..	...	..	...	...	...	...	...	...	...	...	...	...
Measles...	1	10	119	158	37	55	26	36	13	9	4	21	489
Scarlet Fever ...	14	12	20	8	8	2	10	14	14	29	10	6	147
Diphtheria	2	...	...	1	...	1	...	...	...	1	2	...	7
Enteric Fever ...	5	2	4	2	2	...	2	4	8	9	6	2	46
Puerperal Fever	...	...	..	1	...	...	...	...	...	...	...	1	2
Typhus Fever....	...	...	...	...	...	...	...	...	...	...	1	...	1
TOTALS.	22	24	143	170	47	58	38	54	35	48	23	30	692

The accompanying Table gives the number of infectious cases notified as compared with the previous year, the deaths from these diseases, the percentage case mortality, and the death-rate from each disease per 1,000 inhabitants in comparison with the similar rates for the 33 great towns during 1897.

TABLE IX.

DISEASE.	Cases Notified.		Cases Notified per 1,000 inhabitants.	Deaths in 1897.	D.R. per 100 cases.	D.R. per 1,000 inhabitants.	D.R. per 1,000 inhab. for 33 great towns.
	1897	1896					
Smallpox .....	...	...	...	...	...	...	0·0002
Measles	794	148	19·734	23	2·89	0·572	0·55
Scarlet Fever	177	208	4·399	6	3·39	0·150	0·18
Diphtheria	7	6	0·174	3	42·85	0·075*	0·31
Enteric Fever	50	66	1·243	15	30	0·398	0·18
Typhus Fever	1	...	0·024	1	100	...	...
Puerperal Fever ...	2	1	0·049	3	...	0·075	...
Whooping Cough...	...	...	...	9	...	0·224	0·41
Diarrhoea .....	...	...	...	52	...	1·293	1·24

* Including 2 deaths from 'Croup,' the Diphtheria death-rate was really 0·124.

The cost of notification in fees to medical men has been as follows.

	£	s.	d.
Measles:.....	57	0	0
Scarlet Fever	17	17	6
Diphtheria	17	6	
Enteric Fever	6	2	6
Puerperal Fever	2	6	
	<hr/>		
	£82	0	0

SMALLPOX.

There was no case of this disease in the town during the year, so that we have now been free from it since August, 1895. Owing to an increasing proportion of the population in all towns being unprotected from smallpox by being unvaccinated, there is no doubt that in the future severe epidemics will occur from time to time, as, for example, has lately been the case at Gloucester and Middlesborough, and therefore it is necessary that we should always be prepared to deal with this disease. The decrease in the amount of vaccination is largely due to the neglect of parents and the supineness of the authorities who have to administer the Vaccination Acts backed by the misguided activity of the Anti-vaccinators.

After vaccination the next best remedy to deal with the disease from a public health point of view, is prompt and efficient hospital isolation. We have only the Old Sanatorium for that purpose—a building which is not adapted therefor, and at the best can only be used as a makeshift. I must repeat my former advice that some agreement should be made with the Joint Hospital Board, which is to be formed for smallpox purposes alone for the districts of the Rural District Councils for Fylde, Garstang and Preston.

It would be vastly more expensive to build and maintain a small hospital for smallpox for ourselves. Further, it would be impossible almost to find a site in the Borough, and a very difficult matter to get consent from the parties interested to build one outside the Borough.

MEASLES.

Measles was more widely prevalent than in any year on record, and was responsible for 23 deaths. It was more fatal than in any year except 1882. I prepared a special report upon the epidemic dealing with the 732 cases and 23 deaths which occurred up to September 4th, 1897. This report having been issued to the public, I do not propose here to reproduce it.

From that date to the end of the year there were 62 more cases without any death. The whole Borough was affected, but more especially Talbot and Claremont Wards. All the schools in the Borough were closed by the Sanitary Authority from April 21st to May 3rd; and the schools at Marton again closed from June 16th to July 3rd.

SCARLET FEVER.

There were 177 cases with 6 deaths, or a case mortality of 3·39 per cent., and a death-rate of 0·150. All these numbers are less than for 1896.

The prevalence of the disease at the beginning of the year, which was a continuation of that at the end of the previous year, gradually abated until in June there were only two cases. The number of cases quickly increased with the onset of the season, until in October there were 34 cases. The number of cases then began to abate, viz.: to 13 in November and 10 in December.

Foxhall and Talbot Wards were the most extensively affected, especially the neighbourhood of Fisher Street and Gorton Street in the latter ward. In Fisher Street there were five houses close together affected, having in all 12 cases in them. These houses were near to Gorton Street, where in three houses cases developed. This localised epidemic would appear to have been caused through the following circumstances:—A girl was noticed to have a rash and be ill on October 6th, but she rapidly recovered; was allowed to go out and attended St. John's School on October 13th. On October 15th becoming ill again, a medical man was sent for on October 16th, and an account of the occurrence of desquamation the illness was pronounced to be scarlet fever on October 30th.

Three children attending St. John's School, and living in the same house in Fisher street, were notified to me as having scarlet fever on October 25th, the dates of the rashes being October 19th, 23rd and 24th respectively. A fourth case in this house developed a rash on October 26th. One of these cases died. I do not think that infection was caught at school in this case, because no other cases broke out in scholars of this school, but several other cases

broke out in children attending different schools and living in the immediate neighbourhood. There had been previous cases of the disease in this neighbourhood, which had been removed to the infectious diseases hospital, so that our efforts to cut short the epidemic were frustrated by the non-recognition of the disease and the carelessness of the parents in allowing a child to play in the streets whilst in an infectious condition. It is highly essential that parents should recognize their duties in this relation, and should in every case where a rash appears or there be any sore throat, call in a medical man and at least get a definite opinion from him as to the nature of the ailment. These mild cases present almost insuperable difficulties. Other instances of this noticed during the year were :—

(i.) A boy discovered by me to be desquamating after scarlet fever, and who was attending his work at a workshop. This was discovered a fortnight after the onset of the illness. In this case the mother was a midwife, and had been attending confinements during this period. Fortunately no evil results occurred.

(ii.) A female, aged 25 years, had a sore throat on March 19th, without any rash being noticed. Suspicion being aroused and the Inspector calling, she called in her own medical man on April 9th, when free desquamation was discovered. Her only child, two years old, escaped.

(iii.) A girl, aged six, in a public-house, had a rash on March 13th ; a doctor was called in on March 27th, and then by April 10th the desquamation had become so marked that he could pronounce the disease scarlet fever.

(iv.) A female child, aged 3 years 10 months, commenced to be ill on April 12th, with a rash on April 14th. The child recovering for a time, a medical man was not called in until May 10th, and on May 16th we received notification that it was a case of scarlet fever, and it was removed on May 17th to hospital.

(v.) A female child, four years of age, began to be ill on July 20th, whilst away from home, and was seen by a medical man on the following day. The child was seen by a medical man on July 27th, and as far as I can learn, no definite opinion of the nature of the illness was expressed. Shortly afterwards the patient returned to

Blackpool. On August 21st I visited the house in consequence of "information received," and found the child undoubtedly desquamating from scarlet fever. It was isolated for the remainder of the period of infection, and the premises carefully disinfected.

(vi.) A child was found by me attending a private school, where boarders are taken, whilst desquamating freely. She was isolated as a case of scarlet fever, and all precautions taken. Fortunately in this case no cases developed at the school, more by good luck than good management.

Another occurrence worthy of special mention is two cases clearly traced to the milk supply. On April 9th the child—(female, aged seven years)—of a visitor was notified to have scarlet fever. She arrived in Blackpool on April 3rd. A complication in this case was that an elder sister of this girl had had scarlet fever over ten weeks previously, where I was assured, and I have every reason to believe it was the fact, that most rigid isolation was practised and every precaution in the matter of disinfection taken. However, on April 10th (Saturday) a visitor's child in the same street was notified to have scarlet fever, the rash having appeared on Friday, April 9th, the same day as in the previous case. These people arrived in Blackpool on April 5th, and there was nothing common to the two families except the same milk supply. I visited the farm, which was outside the Borough, as soon as possible, and then discovered that there had been scarlet fever on it for over two weeks, and that one child had died and was buried on Thursday, April 8th. The people at the farm were practising the measures which, through lack of hospital provisions, the sanitary officials of the rural district are perforce obliged to do, *i.e.*, the persons attending to the cows are not allowed to come to the farm-house, and the milk and milk cans are also kept away. My own belief in human nature is such that I look upon all such arrangements with the gravest suspicion and as makeshifts which ought not to be endured longer than possible. I could not get any definite information that there had been any laxity, except that at the funeral persons engaged in milking the cows entered the dwelling. Rather than run any further danger, I offered to remove the case into our hospital, but this offer was refused. The farm was subsequently carefully watched, and no further cases occurred therefrom.

DIPHTHERIA.

Only 7 cases of this disease were notified, with 3 deaths, as compared with 6 cases and 1 death in 1896. There were, however, 2 deaths from "membranous croup," and there is little doubt that these were deaths from diphtheria. In one of these cases a subsequent case developed, and it was proved to be diphtheria by bacteriological examination. These two deaths are included in the zymotic death-rate. There is every probability that a few slight cases of the disease escape recognition, as shewn by the high mortality of the notified cases. It is almost necessary to make a bacteriological examination in every suspicious case of "sore throat," and I shall be pleased to assist the medical attendant in such cases in every possible manner.

ENTERIC FEVER.

The number of notified cases declined to 50 from 66 in 1896, and 79 in 1895. But the deaths have increased from 12 in 1895, and 13 in 1896, to 15 in 1897, with one death from "continued fever," doubtless an atypical case of enteric fever. The death-rate of the cases being 30 per cent., *i.e.*, about double what is ordinarily expected, raises the suspicion that a number of moderate and slight cases are not reported, and thus counteract our efforts to destroy the infection of this disease—a disease which ought to be exterminated from our midst in the interests of *every* class of the community, and which is especially inimical to the reputation of the town. The death-rate from this disease is about double the similar rate for the 33 great towns.

Brunswick Ward was the most severely affected, and after that Talbot Ward.

In no instance could the infection be clearly traced to the consumption of infected food, but there are very great difficulties in tracing such a connection. A number of the cases confessed to having recently eaten some form or other of raw shell-fish.

Three of the cases clearly became infected before arriving in Blackpool, and in one instance the premises where the patient had

come to stay were subsequently found to be in a wretched condition, so that it was not surprising that two of the servants became infected from these defective drains and cesspools after the introduction of infection, although we try our best to collect and burn the excreta of typhoid patients and repeatedly disinfect the drains.

Five cases occurred in the district known as Springfield.

TYPHUS FEVER.

A case of this disease occurred for the first time since 1880, the infection being clearly introduced from Liverpool. The patient—(male, aged 19 years)—was in lodgings, and it appeared that his landlady went to Liverpool on October 10th to nurse her son and his wife, who were both ill. Both these cases were removed to hospital, and it was afterwards discovered that they were in reality suffering from typhus, and not typhoid fever. The landlady returned on October 14th, bringing one grandchild to her house and two others to the house of the parents of the son's wife, which was likewise in Blackpool. Both these cases were discharged from hospital in Liverpool on November 9th, and came straight to Blackpool. Our Blackpool patient was not well from October 28th to November 11th and on the latter date he consulted a doctor. A rash appeared on November 13th, and on November 15th it was quite clear what the disease was. He was at once removed, but he died in a few days, delirium being very marked.

PHTHISIS OR CONSUMPTION.

There were 43 deaths from this cause, 11 of them being visitors. In every case an offer to disinfect the premises, free of charge, is made, and in a proportion of the cases that offer is accepted, but even in the others our action causes extra precautions to be taken.

DIARRHŒA.

The classification of deaths from this disease is fraught with great difficulty, and allows the bias of the person classifying to have great influence. I include deaths certified as 'gastro-enteritis' amongst those of diarrhœa, being of opinion that they are really

cases of epidemic diarrhœa. This is a very important matter, for the inclusion of such deaths not only swells the death-rate from diarrhœa, but also that from the seven zymotic diseases. It would be useful to know what is the practice of various Medical Officers of Health in this respect. The cause of death was certified as diarrhœa in 39, as 'gastro-enteritis' in 9, as 'muco-enteritis' in 2, 'enteritis' in 1, and 'inflammation of bowels' in the remaining case. Four of these deaths were of illegitimate children.

Of the 52 deaths 7 were above five years old and 45 below. There were 21 deaths in Foxhall Ward and 14 in Talbot Ward.

In the first quarter there was no death, 1 in the second, 46 in the third, and 5 in the fourth quarter.

During the five weeks ending July 31st, there were 6 deaths; the four weeks ending August 28th, 21 deaths; the four weeks ending September 25th, 19 deaths; and the five weeks ending October 30th, 5 deaths. The deaths from this disease correspond with the temperatures during the third quarter of the year.

Thus, in July the average temperature was 61.2° , or 1.5° above the average for the 21 years, 1871-95. In August the temperature was 61.4° or 1.9° above the average, whilst in September it was 54.2° , or 1.2 below the average, and in October it was 50.9° or 2.1° above the average. Had it not been for the relatively cool September, the number of deaths would have been much higher, and would, perhaps, have equalled those in 1895, viz., 69.

In Chart I., the relation between the deaths from diarrhœa, the temperature of the air, the temperature of the earth at four feet, and the notified cases of enteric fever is shewn graphically.

The evidence with regard to the cause of this disease goes to prove that it is due to a germ or micro-organism which grows in the soil around houses, and that this soil requires to be saturated with

organic matter to allow the germ to grow with profusion. The germ growing in filthy surroundings is transported by air currents into milk or other articles of food, and in this way gains access to the human body. It is for this reason that the Sanitary Department is so particular as to backyards and cellar floors being flagged or concreted, and insist upon bricks and 'cobbles' being removed.

Not only the flagging of yards but also the paving, flagging, &c., of back passages and back streets is very important, and in Blackpool, owing to the rapid growth of the town, a great deal requires yet to be done in properly forming their surfaces. I feel sure that when this is carried out in its entirety there will be a considerable reduction in the death-rate, not only from diarrhœa but also from enteric fever.

As I have pointed out in previous reports, these deaths occur out of all proportion in Revce and in the portion of Talbot Ward bounded by Cookson Street, Milbourne Street, Elizabeth Street and New Road.

Thus, in Revce, 4 deaths occurred in Ashton Road, 2 in Orme Street, 2 (twins) in Freckleton Street, 2 in Ibbison Street, 1 in Belmont Avenue, and 1 in Ribble Place.

In the other district, deaths occurred thus: 2 in Buchanan Street, 1 in George Street, 2 in Fairhurst Street, 1 in Grosvenor Street, 1 in Milbourne Street, and 1 in Cookson Street.

B.—ISOLATION.

The Infectious Diseases Hospital is now so well known, and its usefulness so well recognised, that it is becoming the exception to attempt to isolate a case of infectious disease at home. The percentage of cases removed has increased in the case of scarlet fever from 73 in 1895, and 77 in 1896, to 85 in 1897. Very great praise is due to the Matron, Miss Cain, and her nurses, for their management of the hospital and for the care and ability they display in attending upon the patients.

TABLE X.

Patients admitted to the Sanatorium during Year, 1897.

No. of cases notified.	DISEASES.	Total admtd.	MALES.		FEMALES.		Dis- charged.	Died	Remaining in Hospital, Dec. 31st,	
			Under 12 years	Over 12 years	Under 12 years	Over 12 years			1897	1896
177	Scarlet Fever	158	56	12	65	25	150	5	21	18
50	Enteric Fever	22	2	7	2	11	19	7	...	4
1	Typhus Fever	1	...	1	...	...	...	1	...	...
7	Diphtheria ...	2	1	...	1	...	1	1	...	...
794	Measles	65	31	4	27	3	64	1	...	...
...	Other Diseases	1	...	...	...	1	...	1	...	...
...	Scarlet Fever outside Boro'	3	...	2	...	1	2	..	1	...
...	Enteric Fever outside Boro'	1	...	...	...	1	2	...	...	1
1029	Totals.....	253	90	26	95	42	238	16	22	23

In Table XI. I show that the percentage mortality in all diseases is less amongst patients attended in the hospital than outside.

The Old Sanatorium was used during the year for a few weeks for a few convalescents from scarlet fever.

For the financial year, ending March 31st, 1898, the cost of the hospitals were :—

	£	£
INFECTIOUS DISEASES HOSPITAL.		
Wages of Matron and Porter.....	112	
Nurses, including their expenses	128	
Provisions for Inmates, Staff, &c.	463	
Domestic Servants and Laundress.....	64	
Gas, Coal, Water, Rates, and Taxes	143	
Alterations and Repairs	264	
Gardening	59	
Medicine and Medical Appliances.....	21	
Advertising, Printing, &c.	7	
Sheets, Quilts, &c.....	22	
Furniture, Fittings, &c.	33	
Matron's and Nurses' Uniforms, Cleaning Materials, and Sundry Expenses	52	
	<hr/>	1,368
Less Receipts from Inmates	90	90
		<hr/>
		1,278
Interest and Sinking Fund.....		336
		<hr/>
		1,614

OLD SANATORIUM.

Wages of Caretakers, &c.....	1	
Rents, Rates, and Taxes, Gas, Coal, &c.....	24	
Servant, &c.....	3	
	<hr/>	28
		<hr/>
		£1,642
		<hr/>

During the financial year, March 26th, 1897, to March 31st, 1898, the average stay in the Hospital of the 249 patients was 38·52 days, or 9,593 days, but 2 persons who were not patients were in 7 days.

Not including in the cost of the Hospital the interest and sinking fund, the cost per week per patient was 19s. 11·4d., or £52 2s. 6d. per year. Deducting the amount received from patients, the actual cost to the ratepayers of each patient averaged £1 3s. 6d per week as compared with £1 3s. 9d. in the financial year, 1896-7. In this cost the cost of disinfecting articles sent from the Borough to be disinfected is included.

Since the Hospital was opened in July, 1891, the following cases have been treated there and at home, with the results mentioned in the table :—

TABLE XI.

DISEASE.	Cases treated in Hospital	Deaths.	Per cent. of Mor- tality.	Cases treated at Home.	Deaths.	Per cent. of Mor- tality.
Measles	193	1	0·5	1550	48	3·09
Scarlet Fever.....	642	27	4·20	221	22	9·95
Enteric Fever.....	189	28	14·8	103	32	19·36
Diphtheria	33	10	30·3	32	10	31·2
Typhus Fever.....	1	1	100	...	...	...
Other Diseases.....	9	4	...	...	...	...
TOTALS.....	1067	71	6·65	1966	112	5·69

III.—GENERAL SANITARY CONDITION OF THE DISTRICT.

A.—REPORT OF THE INSPECTOR OF NUISANCES.

To the Chairman and Members of the Sanitary Committee.

GENTLEMEN,—I have the honour to present to you my seventeenth Annual Report of the work carried out under the superintendence of the Medical Officer of Health by my branch of the Sanitary Department during the year 1897.

I give hereunder the figures for the past year's work together with similar figures relating to 1896 for the purpose of comparison :—

					1896.	1897.
Complaints received...	...	...	...	...	33	113
Houses and other premises inspected ..	...	...	...	...	2736	2953
Houses where sanitary defects were found	...	...	...	...	1156	959
Houses and other premises re-inspected...	...	...	...	...	2450	2210
Notices served for the Abatement of Nuisances.	{	Council	...	...	264	223
		Preliminary	...	...	737	638
		Verbal	...	...	216	202
		Letters	...	...	91	157
					<hr/> 1308	<hr/> 1220
HOUSE DRAINS TESTED—						
New Houses	{	satisfactory	...	...	880	891
	{	unsatisfactory...	...	...	214	221
Other Houses	{	satisfactory	...	...	419	290
	{	unsatisfactory...	...	...	698	580
House drains re-tested	...	...	...	...	612	525
Total number of Tests made	...	..	...	...	2813	2371
Number of sanitary defects repaired	...	...	...	...	3143	2188
Houses where sanitary defects were repaired	...	...	...	...	822	487
DRAINS—						
Drains laid, re-laid, and disconnected	...	...	...	...	428	294
Drains repaired and cleaned out	...	...	...	...	222	223
Unsuitable gully traps replaced by properly trapped gullies, and new gullies fixed	...	...	...	...	469	316

W.C.'s—	1896.	1897.
New w.c.'s fixed in lieu of privies and defective w.c.'s ...	104	50
Waterclosets repaired	258	227
Fittings and water provided for w.c.'s	83	70
W.C. Soil pipes repaired and ventilated	188	83

REFUSE RECEPTACLES—

Ashpits abolished	67	43
Ashtubs provided	47	123
Ashpits rebuilt on approved system	15	52
Manure receptacles provided	2	—
Cesspools abolished	1	59
New cesspools built	0	1
Pail closets substituted for privies	1	—

WASTE PIPES

Bath, lavatory, slopstone, and rainwater waste pipes, disconnected over gullies	111	130
New slopstone waste pipes fixed	90	78
New rain-water pipes fixed	52	42
Rain-water pipes and roof gutters repaired	109	30
Slop-hopper waste pipes treated as soil pipes	41	13

MISCELLANEOUS—

Houses cleaned and limewashed	2	9
Walls of houses cemented	7	2
Floors re-laid with flags or in cement	105	33
Back yards repaired	288	117
Back yards flagged	—	31
Back yards concreted	—	21
Back passages cleansed	55	63
Accumulations removed	59	84
Old wells filled in and F.W.W. provided	1	—
Premises disused as sleeping apartments	0	0
Animals removed from improper situations	36	13
Roofs repaired	6	13
Chimneys raised to abate smoke nuisance	4	1
Rooms ventilated	—	1
Premises other than dwellings closed	—	—
Letters (other than those relating to nuisances)	357	704

UN SOUND FOOD.

DESTROYED UNDER MAGISTRATES' ORDERS—

6 sheep killed on the railway.
 18lbs. of bacon.
 2 ducks.

DESTROYED WITH OWNERS' CONSENT—

29 pairs kippered herrings, 3 boxes of mackarel, 3 hake, 3 haddocks, 7 plaice,
 1 piece of cod, 1 piece of halibut, 7 chickens, and 111lbs. of beef, 9lbs. of
 apples, 10lbs of gooseberries, and 16½lbs. of pears.

For the meat destroyed with owners' consent at the Public Slaughterhouse, the
 portion of the report relating thereto must be consulted.

For exposing unsound ducks or sale the owner was fined 20s. and costs.

The owners of the sheep and bacon were not summoned.

The dairies, milkshops, bakehouses, slaughterhouses, common lodging-houses,
 shops and workshops were inspected regularly.

INFECTIOUS DISEASES.

	1896.	1897.
Inquiries made into cases of infectious disease	376	889
Houses disinfected after cases of infectious disease	312	671
Houses disinfected after cases of consumption	6	2
Isolation notices served upon householders	360	889
Isolation notices served upon school managers	168	281

ARTICLES REMOVED FROM 227 HOUSES TO SANATORIUM—

Sheets, quilts, blankets and such 1225	Carpets	287
Articles of clothing 1147	Rugs and Mats	153
Pillows and bolsters 861	Curtains	89
Books 83	Cushions	82
Beds 308	Table-cloths	18
Mattresses 329	Miscellaneous Articles	327

Total number of articles disinfected 4909, and also 4258 articles from the Sanatorium.

Total 9167.*

SALE OF FOOD AND DRUGS ACTS.

Samples were taken for analysis according to the provisions of the above Acts, viz. : —

Pepper.....	2	Vinegar.....	2	Butter	6
Lard.....	1	Rum	5	Glycerine	1
Coffee	5	Whiskey	1	Milk	11
					<hr/>
					34

All were reported by the Analyst to be genuine except one, which was certified to be deprived of part of its cream by skimming or by the addition of separated milk or otherwise. The magistrates dismissed this case.

GENERAL REMARKS.

Of the 487 houses put into a condition of sanitary repair 340 were in the northern section of the town, and 147 in the southern section.

The staff of drain testers is still maintained at its old strength, a large proportion of the time of the men being taken up with testing the drains of new houses before occupation.

A summons was taken out against the owner of a house for a nuisance under section 91 of the Public Health Act, 1875, but he promptly complied with the notice which had been previously sent him, and after the work was completed the summons was withdrawn on payment of costs.

My thanks are again due to the owners and agents of property, for their readiness, as a general rule, to meet in a fair spirit, the demands of the Sanitary Department. I am at all times willing to confer with them as to any alteration of the sanitary arrangements of houses.

I am, Gentlemen,

Your obedient servant,

FRANCIS MACDONALD,

Inspector of Nuisances.

PUBLIC HEALTH OFFICES,

FEBRUARY, 1897.

B.—THE CONDITION OF DWELLINGS.

Constants efforts are still being made to place all the Houses in the Borough in a good state of sanitary repair and maintain it. Out of 870 occupied houses which were submitted to the smoke test and a complete sanitary inspection, 290 were reported as satisfactory, *i.e.*, 33 per cent., as compared with 37 per cent. in 1896.

The drains of all houses, both new and old, are now being laid with cement joints; a very distinct advance which ought to lighten the work of the Sanitary Department in this respect in a few years, and also have an appreciable effect on the health of the community.

But I should still like to see the water test applied to all drains, both before being buried and afterwards; and the disconnecting trap so arranged that this test can be properly applied.

I have to repeat my objection to the non-enforcement of the bye-law with respect to cementing, asphaltting, &c., the site of a dwelling. With the flagging of yards, passages, and footpaths, and the formation of streets with an impervious material in the neighbourhood of a dwelling-house there is an increased tendency for the ground-air, polluted either with coal-gas or sewer-gas, to be drawn into the building. Several instances have been met with during the year of the ground-floor being made of wooden boards, having stagnant water several feet deep lying below. In new cottage houses, with only a w.c. in the yard, the Building Plans Committee do not insist upon the drains being properly ventilated; but we are getting this carried out more and more by explaining the advantages of it to the owners.

C—WATER SUPPLY.

There have been fewer complaints of the turbidity of the water delivered by the Fylde Water Company than in former years, and when the new filter-beds are completed, and if they are kept in constant use the Borough will not only have one of the finest waters in England for its use, but also have it delivered in such a state as to appeal to the eye.

D.—REMOVAL AND DISPOSAL OF HOUSEHOLD REFUSE.

This sub-department was re-organised during the year, the town being divided into two districts and a foreman appointed over each, to be responsible for the work done in his section. Up to the present this arrangement has worked well.

The construction of houses in districts where there are no sewers has caused a number of cesspools to be made, and the emptying of these every week has not only been a tax upon the workmen, but has caused a nuisance to the inhabitants. It is to be hoped that the two pumping stations to pump sewage from the sewers in these districts will be at work shortly, so that the cesspools can be abolished, with a relief to the expense and improvement to the public health.

SUMMARY OF WORK DONE.

	1896.		1897.		Increase or Decrease.
Ashtubs emptied	402,430	...	446,929	...	†44,499
Ashpits do. ....		...		...
Ordinary	1,642	...	2,564	...	† 922
Modified	4,711	...	4,526	...	— 185
		
Ashpits (total).....	6,353	...	7,090	...	† 737
Cesspools emptied.....	1,440	...	2,413	...	† 973
Pail closets (emptied weekly)	6,810	...	12,983	...	† 6,173
Privies (in rural portions of the Borough)	2,379	...	1,431	...	— 946

The number of ashtubs, privies, &c., in the borough on December 31st were as follows —

	1896.		1897.		Increase or Decrease.
Ashtubs	7,505	...	9,997	...	† 2,492
Ashpits, ordinary	250	...	251	...	† 1
Do. modified	270	...	325	...	† 55
Privies	124	...	88	...	— 36
Cesspools	91	...	82	...	— 9
Pail-closets	230	...	441	...	† 211

The sign † means increase, and — decrease in this and the following table.

The refuse carted was disposed of as follows :—

	1896.		1897.		Increase or Decrease.
Loads of refuse carted to the Destructor	19,857	...	19,405	...	— 452
Do. do. tip ..	678	...	2,475	...	† 1,797
Do. do. oyster shell heap.....	120	...	140	...	† 20
Do. do. on land in rural parts of the Borough...	1,874	...	4,503	...	† 2,629
		
Total loads of refuse carted.....	22,529	...	26,523	...	† 3,994
Do. coke do. to cremators	599	...	635	...	† 36
		
Total loads of refuse and coke	23,128	...	27,158	...	† 4,030

The increase of loads tipped at the Destructor is due to the fires being put out for some weeks whilst the cells were being repaired. This refuse has since been re-carted and cremated.

For the financial year, March 26th, 1897, to March 31st, 1898, the cost of emptying ashpits was £3,965; *i.e.* per inhabited house of 9s. 6·7d., as compared with 8s. 10·17d. in 1896-97.

The number of loads of refuse and coke carted in the financial year was 29,305, that is 2s. 8·4d. per load, as compared with 2s. 9·55d. per load in 1896-97.

The cost of the refuse destructor during the financial year, including interest and sinking fund, was £3,316, and the loads burnt were 22,393, at a cost of 2s. 11·5d. per load consumed, as compared with 2s. 1·47d in 1896-97.

E.—THE PUBLIC SLAUGHTERHOUSES.

During the year the following animals have been slaughtered in the slaughterhouses of the Corporation :—

Beasts—Cows	202	
Heifers	883	
Bullocks	218	
Bulls	9	
	—	1,312
Calves		502
Sheep	19,631	
Pigs	1,580	
Total.....		23,025

The livers of 171 animals—136 sheep, 24 heifers, 6 cows, and 5 bullocks—were affected with “flukes,” and were destroyed.

The animals affected with tuberculosis in varying degrees were—bulls 2, cows 16, pigs 12, heifers 9, and 1 bullock.

In all these cases the viscera were given up and destroyed, and the carcase dressed by the careful removal of all the lymphatic glands.

In one case portions of the ribs and in another 160lbs. of the carcase were destroyed. The hind-quarter of a cow weighing 148lbs. was destroyed. The two fore-quarters of a pig,

the head and tongue of a heifer, 32lbs. of the carcase of a heifer and 73lbs of another carcase of a heifer were all burnt. The carcase of one cow with extensive tuberculosis, weighing 494lbs., was likewise destroyed.

The livers of 11 pigs were found to be cirrhotic and were given up.

The livers of 5 heifers, 2 cows and 1 bullock had extensive abscesses in them, and these were destroyed. There was a large subphrenic abscess in one heifer, the liver, lungs and diaphragm being cremated.

A heifer which had fallen down in a field and was brought to the slaughterhouse to be dressed, after having been bled where it was found, was discovered to be affected with anthrax. The whole carcase, viscera and hide, were burnt under the strictest precautions, and the premises carefully disinfected. The soil in the field contaminated with the blood was carted away to the destructor, and as far as possible burnt. A second animal of this herd was found dead a few weeks later, and this also suffered from anthrax. It was promptly removed. No further case occurred. The infection could not be traced in spite of the most stringent investigation.

The livers of 1 cow and 1 sheep were filled with cysts. Likewise the liver and kidneys of another sheep. These were all cremated. The carcase and viscera of one sheep affected with pneumonia were destroyed.

The carcase and viscera of 1 pig affected with enteritis was sacrificed.

One sheep and 3 lambs suffocated in transit were burnt, as also 2 sheep found dead. The carcase of 1 sheep and 2 pigs' heads, which had begun to decompose, were also destroyed.

At the present time, six of the ten slaughterhouses are let to the following butchers :—Messrs. Cocker, Wilkinson, Thomas, Harrison, Bridge, Hull, Sowerby, Rainford and Holt, and the Blackpool Co-operative Society. The public slaughterhouse is regularly used by Messrs. Flintoff, Barlow, Ashurst, Whetman, Waring, Noble, Robert Hull, Tootell, Cropper, Fleming, Braithwaite, Salmon and Sykes. Others occasionally use it.

The pig slaughterhouse is regularly used by Messrs. Robinson, Hornung, Walker and Priestley, and the Co-operative Society.

The public have now the satisfaction of knowing that the above-mentioned firms so conduct their business that both the animals and their carcasses are subject to the inspection of public officials in every case.

F.—THE VENTILATION AND FLUSHING OF SEWERS.

Complaints are from time to time received as to smells from sewer-manholes in the public streets. There is little doubt that such foul smelling gases are injurious to health, but apart from that, it is unpleasant, and ought to be guarded against in every possible manner. If, in the first place, provision were made for flushing all the branch sewers in the back streets from the dead end, either by automatic flushing tanks or otherwise, the greater portion of the filth, by whose decomposition the gas is generated, would be removed. So long as no sewers of deposit are allowed to continue and the sewers kept regularly flushed, I believe that we may safely close all openings and grates which deliver sewer gas on to the surface of streets or in the neighbourhood of houses

IV.—METEOROLOGY.

The observations have been taken by Mr. T. Sanderson, Sanitary Inspector, assisted by other members of the Sanitary Staff. During the season telegraphic messages of the state of the weather were sent each forenoon to the *Sheffield Daily Telegraph* and to the *Manchester Evening News*.

The equipment of the department consists of—

- (i.) A Standard Fortin barometer kept in the Health Office.
- (ii.) A Stevenson-screen containing wet and dry bulb and maximum and minimum thermometers.
- (iii.) An earth thermometer at a depth of four feet.
- (iv.) A rain gauge.
- (v.) A Campbell-Stokes Sunshine Recorder, a wind vane, and an anemometer on the North Pier.

The Stevenson-screen, with the thermometers and rain gauge, are kept at the Infectious Diseases Hospital. The tables at the end of the report give the result of the observations for the year. I append here a short summary of the weather for each month of the year. The observations are taken daily at 9 a. m.

On March 4th and November 22nd the sunshine cards were stolen from the frame, so that if there were any sunshine on those days it is not recorded.

The Campbell-Stokes recorder gives lower readings than other forms of sunshine recorders. It was noticed that the sun was shining brightly most of the day on December 22nd and 23rd, and yet it was not powerful enough to leave a trace or any record on the card.

January was a colder, brighter and drier month than usual. On January 24th the minimum thermometer recorded 18 degrees F. The fall of rain and snow was less than usual, whilst the bright sunshine was slightly increased. The average temperature was 35·2 degrees, but yet it was 1 degree above Stonyhurst and 0·5 degree above Manchester.

February. The barometric pressure was high, averaging 30·039 degrees for the month. The temperature was 1·6 degrees above the average. The rainfall was in excess, whilst the bright sunshine was only half the amount that it usually is at this period of the year.

March was a rough unsettled month. The barometer was low, averaging 29·654 degrees. Depressions were numerous, one on the 28th passing directly over us. The temperature was 43·5 degrees or 2·3 degrees above the average. It exceeded Manchester by 0·2 degree and Stonyhurst by 1·6 degrees. Rain fell on 24 days, and was 1·55in. above the average. Bright sunshine was about 6 hours less than the average.

April was a changeable month. The average temperature was 44 degrees, or 1·9 degrees colder than usual, still it was 0·3 degrees warmer than Manchester and 0·8 degree than Stonyhurst.

The barometer was lower than the average. Rainfall was in excess, whilst there were 23 hours bright sunshine more than usual.

May was a bright, dry month. The barometric pressure was about the average, but the range was large for the time of the year. The temperature was 0·9 degree below the average, being 1·6 degrees warmer than Manchester and 1·4 degrees above Stonyhurst. The rainfall was below the usual amount, and there were 75 hours of bright sunshine in excess of the normal.

June was a very changeable month. The centres of several depressions passed directly over us as on the 14th, 18th and 19th of the month. The barometer was high, averaging 30·02 degrees, with a moderate range. The temperature was 57·8 degrees, being 1·2 degrees above the average, and 0·5 degree below Manchester. The rainfall was 2·49 inches above the usual amount, and the bright sunshine 45 hours less.

July was generally a fair and dry month, the weather being mostly anti-cyclonic. The range of the barometer was moderate. The temperature was 61·2 degrees, or 1·5 above the average. The rainfall was slight, being only 1·26 inches, or 1·89 inches less than usual. There were 63 hours of bright sunshine in excess of the normal.

August was a changeable month, the barometer being low and with a small range. There were numerous depressions, but they passed outside the coast line. The temperature was 61·4 degrees, being 1·9 degrees above the average, 1·8 degrees warmer than Stonyhurst and 1 degree than Manchester. The rainfall was about the average, whilst there were 47 hours of bright sunshine above the average amount.

September on the whole was a rainy, changeable month. Barometric pressure was above the average, with a large range. A depression passed over us on the first. The temperature was 54·2 degrees, being 1·2 degrees colder than usual, but still it was 2·4 de-

degrees warmer than Stonyhurst and 1·9 degrees than Manchester. Rainfall was about the average, and bright sunshine 11 hours in excess.

October was a fair, mild, dry month, and as is often the case, one of the best months in which to visit the town. The pressure was high and the weather anti-cyclonic. The range was fair. The temperature was high, being 50·9 degrees, or 2·1 degrees above the average. The rainfall was 2·17 inches less, and the bright sunshine 21 hours in excess of the normal.

November was a very rainy month. The pressure was high, being 30·16 inches. The temperature was high, but very variable. It was 47 degrees, or 3·8 above the average. The rainfall was high, being 5·69 inches, or 2·28 inches above the normal. On the 30th there was a rainfall of 1·88 inches. The bright sunshine was 13 hours less than usual.

December was mild and changeable. High barometric pressure with extensive range. Temperature 41·2 degrees, or 2·2 degrees above the normal. Rainfall and bright sunshine slightly above the average.

Appendix, Tables, &c.

TABLE B (Local Government Board Return).

Table of Population, Births, and of New Cases of Infectious Sickness, coming to the knowledge of the Medical Officer of Health, during the year 1897, in the Borough of Blackpool, classified according to Diseases, Ages, and Localities.

NAMES OF LOCALITIES.	Population at all ages.			Registered Births.	Aged under 5 or over 5.	New Cases of Sickness in each Locality, coming to the knowledge of the Medical Officer of Health.													Number of such Cases Removed from their Homes in the several Localities for Treatment in Isolation Hospital												
	Census, 1891.	Estimated to middle of 1897.				Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Measles.	Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typhoid.	Continued.	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Measles.	Other Diseases.	
a	b	c	d	e		1	2	3	4	5	6	7	8	9	10	11	12	13	1	2	3	4	5	6	7	8	9	10	11	12	13
Claremont Ward	3464	6401	154	Under 5 5 upwards			3										63			2										3	
Talbot Ward (H)	6390	10125	300	Under 5 5 upwards			21	2			7						70			8			3							6	
Bank Hey Ward	2056	2135	25	Under 5 5 upwards			41	1			13			1			190			17	1									11	
Brunswick Ward	4005	6083	159	Under 5 5 upwards			8				2						14			1										2	
Foxhall Ward	4905	10104	283	Under 5 5 upwards			15			1	14			1			42			14				1	8					7	
Waterloo Ward	2956	5325	116	Under 5 5 upwards			33	1			8						63			16	1			6						6	
Kirkham Workhouse (not in the Borough)			10	Under 5 5 upwards			4				5						42			4										3	
TOTAL	23846	40234	1056	Under 5 5 upwards			53	5			1						384			40	2			1						24	
							124	2		1	49			2			410			112			1	21						41	1

Infectious Diseases Hospital situated in the Ward marked (H).

TABLE C.
POPULATION AND DEATH RATES (RESIDENTS) AT VARIOUS AGES.

	BLACKPOOL, 1897.									Engl'nd and Wales 1881-90	Engl'nd and Wales 1881-90
	Per cent. of population living at various ages.		Number estimated living in 1897.		Total Deaths.		Death Rate.		Death Rates of persons at different ages.	Death Rates of males living at different ages.	Death Rates of females living at different ages.
	Males	Females	Males	Females	Males.	Females	Males.	Females			
Under 5 years ...	4·62	5·33	1,873	2,145	152	97	81·15	45·23	62·22	61·64	51·96
5 and under 15...	9·73	10·58	3,916	4,255	8	6	2·04	1·41	1·71	4·54	4·56
15 and under 25	7·57	11·59	3,045	4,665	13	13	4·27	2·79	3·37		
25 and under 65.	19·10	27·50	7,679	11,063	104	106	13·54	9·58	11·20	15·19	12·92
65 and under 75..	1·29	1·87	518	753	35	28	67·57	37·21	49·57	70·50	60·46
75 years and over	0·34	0·47	133	189	19	33	142·5	174·6	161·49	163·05	148·06

TABLE D.
ANALYSIS OF MORTALITY.

Average of	BIRTH RATE.	Annual Rate of Mortality from						Proportion of Deaths under 1 year to 1,000 births (Infant Mortality).	Percentage of Total Deaths						
		All Causes (gross D.R.)	All Causes (Corrected for Visitors.)	Seven principal Zymotics.	Pulmonary Consumption.	Other Diseases of the Lungs.	Heart Disease.		Of Infants under 1 year.	Under 5 years.	60 years and over	From seven principal Zymotics.	From Pulmonary Consumption.	From other Lung Diseases.	From Heart Disease.
1881-85.	29'56	19'5	17'2	1'89	1'49	3'12	1'70	161	24'44	32'5	23'1	10'16	7'68	15'93	7'61
1886-90.	25'18	17'6	15'4	2'11	1'21	3'19	1'40	150	21'5	34'3	26'8	12'3	6'9	18'3	8'1
1891-95.	23'91	18'6	15'3	2'06	1'14	3'91	1'51	183'3	23'82	33'8	24'9	10'88	6'24	20'74	8'2
1891.	22'36	20'0	18'2	2'03	1'2	5'4	1'6	182	21'5	34'1	27'8	10'2	6'3	27'0	8'1
1892.	24'01	18'2	15'3	0'89	1'2	3'81	1'49	158	20'9	29'3	25'4	4'9	6'7	20'9	8'2
1893.	22'47	18'7	14'9	2'68	0'98	4'14	1'51	210'3	25'1	33'2	24'6	14'1	5'2	22'1	8'0
1894.	23'93	15'8	11'9	1'38	1'08	2'21	1'48	159'7	24'1	33'2	24'5	8'7	6'8	13'9	9'3
1895.	26'77	20'06	16'33	3'31	1'24	3'98	1'43	206	27'49	39'3	21'9	16'47	6'19	19'79	7'10
1896.	25'66	17'19	13'84	1'99	1'15	3'06	1'44	158'5	23'6	32'9	27'5	11'6	6'6	17'7	8'4
1897.	26'25	18'57	15'29	2'78	1'07	3'75	1'62	193'2	27'0	37'8	24'1	15'0	5'8	20'1	8'7

TABLE E.

Births and Deaths (Residents) in Each Quarter of the Year
1897.

Quarter ending	Births.	Deaths from all Causes.	Seven principal Zymotic Diseases.	Pulmonary Consumption.	Other Lung Diseases.	Heart Disease.	Total Deaths under 1.	Under 5.	65 years and over.
March 27th.....	229	141	7	10	39	15	29	42	37
June 26th	260	157	28	3	38	13	38	62	28
September 25th.....	288	150	41	8	18	10	62	77	22
December 31st	279	166	19	11	31	13	49	68	28
TOTALS.....	1056	614	95	32	126	51	178	249	115

TABLE F.

Shewing the Several Death Rates (Residents) for Each Quarter
in the Year 1897.

Quarter ending	Death Rate.		Infant Mortality.	Per cent. of Total Deaths of Deaths.			
	From all Causes.	From 7 Zymotics.		From 7 Zymotics.	Of Infants under 1 year.	Of Children under 5 years.	Of Persons 65 years and over.
March 27th ...	14.87	0.738	126	4.9	20.5	29.8	26.2
June 26th.....	15.65	2.791	146	17.7	24.2	39.5	17.7
September 25th	14.95	4.087	215	27.3	41.3	51.3	14.7
December 31st	15.53	1.777	176	11.4	29.5	40.9	16.9

TABLE G.

Deaths	1890 Quarters.				Totals.	1891 Quarters.				Totals.	1892 Quarters.				Totals.	1893 Quarters.				Totals.	1894 Quarters.				Totals.	1895 Quarters.				Totals.	1896 Quarters.				Totals.	1897 Quarters.				Totals.
	1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4	
From all causes ...	110	112	116	119	457	98	158	128	123	507	123	110	131	124	488	116	115	173	128	532	103	124	132	122	481	156	165	179	161	661	133	141	179	177	630	162	179	214	191	746
Under 1 year	27	24	26	30	107	24	23	32	30	109	23	17	27	35	102	29	18	66	21	134	21	29	34	32	116	27	36	71	48	182	26	29	52	42	149	32	42	75	53	202
Under 5 years.....	43	37	35	41	156	31	50	45	47	173	31	24	41	47	143	42	26	79	30	177	29	41	43	47	160	46	59	89	66	260	35	47	66	59	207	47	67	94	74	282
60 years and over	33	27	35	34	129	36	33	36	35	140	33	38	22	37	130	27	29	35	40	131	26	30	33	29	118	47	40	26	32	145	45	33	51	44	173	51	42	43	44	180
From 7 Zymotics	14	8	18	7	47	7	4	24	17	52	2	1	11	10	24	10	7	49	9	75	6	6	20	10	42	12	14	58	25	109	11	12	33	17	73	8	29	56	19	112
" Pulmonary Consumption	5	7	7	8	27	5	10	10	7	32	11	5	12	5	33	6	5	9	8	28	9	10	4	10	33	14	11	9	7	41	10	11	6	15	42	11	6	14	12	43
" Other Lung Diseases	29	29	9	28	95	20	68	11	29	137	29	25	17	31	102	43	32	14	29	118	18	14	12	23	67	31	40	26	34	131	30	30	16	36	112	43	43	26	38	150
" Heart Disease	8	13	9	7	37	6	13	11	11	41	10	7	17	6	40	6	19	10	8	43	10	13	13	9	43	12	13	9	13	47	9	14	18	12	53	15	16	16	18	63
" Zymotics ...	13	6	3	22	4	1	6	10	21	3	6	9	9	5	3	9	8	25	5	4	10	7	20	9	7	5	9	30	8	7	6	11	32	8	24	5	14	51
" Diarrhea	2	14	7	23	1	16	7	24	1	8	1	10	1	1	38	1	41	2	10	1	13	2	51	16	69	2	1	25	5	33	1	46	5	52
" Whooping Cough	1	1	2	3	2	2	7	1	1	3	5	4	3	2	0	1	2	3	3	3	5	2	10	1	4	2	1	8	4	5	0

TABLE K.

	Population.	Rate per 1,000.				Total Births.	Total Deaths.	Infant Mortality per 1,000 Births
		Births.	Deaths.		Seven Zymotics.			
			Gross.	Cor- rected.				
1878...	13,000	38·8	21·0	...	5·0	439	274	166
1879...	15,000	36·6	17·8	...	3·06	401	268	122
1880...	15,000	34·0	22·7	...	5·0	510	341	205
1881...	14,229	30·6	18·6	15·8	1·2	436	265	126
1882...	16,000	30·0	22·9	21·0	2·8	480	367	220
1883...	16,000	30·0	19·5	16·6	1·6	480	312	139
1884...	17,212	29·8	19·0	17·1	2·14	513	328	146
1885...	18,031	27·4	17·2	15·2	1·71	494	311	174
1886 .	19,550	25·9	18·9	16·5	2·71	508	370	151
1887...	20,380	25·3	16·0	14·0	2·45	516	327	116
1888...	20,540	24·5	15·6	13·2	1·6	504	322	136
1889...	21,661	26·5	18·7	16·5	1·9	575	406	168
1890...	24,312	23·7	18·5	16·5	1·9	577	451	181
1891...	25,310	22·3	20·0	18·2	2·03	566	507	181
1892...	26,740	24·0	18·2	15·2	0·89	642	488	158
1893...	28,389	22·4	18·7	14·8	2·68	638	532	192
1894...	30,337	23·9	15·8	11·9	1·38	726	481	159
1895...	32,943	26·7	20·06	16·33	3·31	882	661	206
1896...	36,638	25·7	17·19	13·84	1·99	940	630	158
1897...	40,234	26·25	18·54	15·26	2·78	1,056	746	191

TABLE L.

SHewing THE PERCENTAGE OF TOTAL DEATHS, OF DEATHS OF
CHILDREN UNDER 5 YEARS OF AGE, AND OF PERSONS OVER
60 YEARS OF AGE.

	Total Deaths.	Under 5 Years of Age.	60 and over.	Per cent. of Total Deaths, of Deaths.	
				Under 5 years of Age.	60 and over.
1878	274	103	56	37·8	20·7
1879	268	93	50	34·7	18·6
1880	341	153	59	44·8	17·3
1881	265	80	61	30·1	23·0
1882	367	106	71	28·8	19·3
1883	312	106	76	33·3	24·3
1884 ..	328	101	82	30·7	25·0
1885	311	123	74	39·5	23·7
1886	370	133	89	35·9	24·0
1887	327	107	99	33·0	30·0
1888	322	103	84	32·3	26·0
1889	406	147	93	36·2	22·9
1890	451	156	129	34·5	28·6
1891	507	173	141	34·1	27·8
1892 ..	488	142	130	29·1	26·6
1893	532	177	131	33·2	24·6
1894	481	160	118	33·2	24·5
1895	661	260	145	39·3	21·9
1896	630	207	173	32·9	27·5
1897	746	282	180	37·8	24·1

METEOROLOGICAL OBSERVATIONS.

Lat.—53° 49' Long.—5° 3' W. H. M.
1896. 1897.
Mean Temperature (of Max. and Min. combined)...45·845·9
Total Rainfall (in inches)32·88.....35·76
Bright Sunshine... { 1896...1470...12
1897...1485...58

1897. Month.	Pressure of Atmosphere in month corrected for temp. and press.		Temperature of Air in Month.										Mean Humidity Complete Saturation = 100.	Rainfall.				Bright Sunshine.	Amount of Cloud. 0 = clear ; 10 = overcast 9 a.m.
	Mean.	Range.	Means of			Absolute Extremes of					Amount (in inches).	No. of Rainy Days.		Maximum fall in one day.	Date.				
			9 a.m.	All highest	All lowest	Daily Range.	Maximum.	Date.	Min.	Date.						Range.			
January	29·99	1·130	35·5	40·0	30·2	9·8	47·1	1st	18·3	24th	28·8	87·0	1·22	12	0·21	24th	38·71	6·5	
February	30·039	1·306	40·7	45·3	36·4	12·5	54·7	26th	28·3	1st	26·4	88·3	2·52	18	0·31	5th	28·90	7·2	
March	29·654	1·247	43·1	48·3	38·7	9·6	56·7	21st	26·0	30th	27·7	84·7	3·68	24	0·72	2nd	93·73	6·5	
April	29·835	1·006	45·1	51·4	36·4	15·0	60·6	26th	26·1	5th & 8th	34·5	77·7	2·55	16	0·61	13th	170·5	5·3	
May	29·981	1·215	52·4	58·6	41·1	17·5	70·2	17th	32·3	20th	37·9	71·5	1·34	13	0·25	28th	267·30	4·6	
June	30·02	0·927	57·8	65·5	49·7	15·8	80·3	23rd	40·5	10th & 11th	39·8	81·2	4·58	16	1·07	1st	147·10	5·9	
July.....	29·999	0·712	62·6	69·2	53·0	16·2	77·8	19th & 24th	45·3	13th & 14th	32·5	75·5	1·26	8	0·37	20th	239·49	4·8	
August	29·756	0·816	62·9	69·0	53·7	15·3	84·1	3rd	45·4	29th	37·8	76·8	3·41	20	0·72	20th	198·22	5·3	
September	29·976	1·543	55·1	60·9	47·6	13·3	66·4	13th	34·7	11th	31·7	82·5	3·61	16	0·86	1st	133·18	5	
October	30·129	1·294	51·5	57·5	44·1	13·4	62·4	17th	34·9	13th	27·5	82·4	2·02	14	0·56	14th	108·20	5	
November	30·160	1·233	46·9	52·0	41·9	10·1	57·1	13th	28·8	16th	28·3	88·5	5·69	13	1·88	30th	30·3	7·3	
December	30·144	1·628	41·1	46·4	35·5	10·9	56·2	16th	24·5	23rd	21·7	88·0	3·88	20	0·61	15th	29·31	7·6	

Direction of Wind at Blackpool during 1897.

1897.	N.	N.N.E.	N.E.	E.N.E.	E.	E.S.E.	S.E.	S.S.E.	S.	S.S.W.	S.W.	W.S.W.	W.	W.N.W.	N.W.	N.N.W.	No of Days in each Month
January	6	..	4	5	3	2	4	..	..	..	..	..	..	1	6	..	31
February .....	..	..	1	6	2	..	6	..	1	..	5	2	4	1	..	..	28
March .....	..	..	..	1	3	1	5	..	1	..	6	7	4	..	3	..	31
April	3	1	..	6	3	3	4	1	..	..	1	3	2	2	1	..	30
May	2	..	3	2	1	..	..	..	2	1	4	3	3	3	7	..	31
June .....	..	..	..	3	5	2	1	..	1	..	4	2	2	3	7	..	30
July	1	..	..	4	1	..	3	..	..	..	5	4	4	4	5	..	31
August .....	..	..	..	..	4	1	5	..	5	1	5	2	6	..	1	1	31
September ...	1	..	1	4	1	..	3	..	1	..	6	3	1	3	6	..	30
October	1	1	..	1	4	3	9	..	1	..	4	..	1	1	5	..	31
November .....	..	..	1	4	4	1	7	..	3	..	5	1	2	..	1	1	30
December	1	..	..	1	2	5	12	..	4	1	2	1	2	..	..	..	31
Totals	15	2	10	37	33	18	59	1	19	3	47	28	31	18	42	2	365

